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How Can I Tell If a Web Address Is Safe?

What to look for and what to check.

By Leo Notenboom

Question: *I am confounded by Security when clicking onto a website. Some sites put the section of the site you are wanting ahead of the web address.*

Example ***http://photos.kodak.com*** *and some put the section after example* ***http://kodak.com/photos****. These examples are just made up, but I hope you understand what I'm saying. How do I know if I'm on the secure website I'm supposed to be on? At times, I see other addresses flashing by on the toolbar that are not the site I clicked on before the actual site appears.*

This simple question opens up a veritable Pandora's box when it comes to understanding URLs and what is safe to click on. And yet it's important to have some sense of safety to avoid links that might take you to malicious or misleading sites.

The *concepts* are simple, but how those concepts can be combined is complex, particularly if someone is attempting to deceive you. I'll try to make some sense of it all.

In Short

How domain names can be abused

A URL, or web address, beginning with HTTPS[1] has several components, the most important being the server or website address between the leading slash marks (//) and the following single slash (/). This is often obscured by making trusted websites appear as subdomains of a hacker's domain or using confusing encoding. Always examine the leftmost portion of the full domain to confirm that it's going where you think. HTTPS is available to fraudulent domains as well, so you cannot rely on it alone as an indicator of safety.

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Inside this issue:

A long article on scammers on the internet...

Three basic URL components

URL is short for Uniform Resource Locator.
The web address — something like https://askleo.com — is the most common.

There are three primary components to a URL:

- The server specification
- The page specification
- Parameters

The *server* specification ends at the first "/" after the "https://" start of the URL, and the *page* specification ends at the first question mark after that. To discern whether a URL is valid, bogus, or misleading, you need to understand the difference between the server specification and the page specification.

I'll use this URL as our example for discussion:

https://www.somerandomservice.com/folder/page?parameter1=value1&parameter2=value2

https://www.somerandomservice.com is the *server specification*

It identifies the protocol (the "language" of webpages) and the server that hosts the webpage. www.somerandomservice.com identifies a specific server on the internet from which what follows will be requested.

- **folder/page** is the *page specification*. It details exactly what you are requesting from the server. Typically, it's a webpage to be found within a folder on that server, but it could also be a program to run on the server or a file to be downloaded.

?parameter1=value1&parameter2=value2 are *parameters*. The question mark indicates that the rest of the URL contains additional information supplied to the page. Since "pages" can often be small (or large) computer programs, information from this part of a URL is given to those programs to use in ways that affect the content of the page ultimately displayed.

Let's look at two common ways scammers try to fool people who don't know the difference between server and page specifications.

One way a server specification can fool you

The server the URL is contacting begins after the "https://" and ends at the next "/".

Or, in this URL, the part that's highlighted.

https://**www.somerandomservice.com**/folder/page parameter1=value2&parameter2=value2

That's the part that matters, because that's the part that tells your browser which internet server to connect to. Everything else is secondary. Important, yes, but not nearly as important.

Let's look at one phishing attempt that might try to fool you.

https://www.somerandomservice.com/www.paypal.com

It might be tempting to look at that quickly and say, "Oh, that ends in paypal.com, so it

goes to PayPal!"

No, it doesn't. Look again.

https://**www.somerandomservice.com**/www.paypal.com

That URL loads a *page* named "www.paypal.com" (a valid **page** name) from the *server* **www.somerandomservice.com**.

Now, my example is pretty lame, as "www.somerandomservice.com" is big and obvious at the front of that URL. But scammers use all sorts of variations on this theme to make it look like you're going someplace you trust when you're not *if you don't look closely*.

Another way a server specification can fool you

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For this point, we need to examine how server names are created and used.

URLs are created from right to left, and the individual components are separated by a period. Consider "www.somerandomservice.com".

".com" is the *top-level domain*. It indicates which registry service is used to register the domain initially.

- "somerandomservice" is the *domain name*. This is the part you purchase when you register a domain name.

"www." is the *subdomain*. Once you own the domain, you can create as many of these subdomains as you like.

In general, fully qualified domain names like "www.somerandomservice.com" identify a server on the internet. "photos.somerandomserver.com" would typically be a different server, but it doesn't have to be.

The choice between using something like "photos.somerandomserver.com" versus "somerandomserver.com/photos" is purely one of site design and has no security implications. That's just how the person building the website chose to do it. There are geeky pros and cons to each, but for a typical web user, it doesn't matter.

What does matter is how subdomains can be abused. For example, this could be a valid domain:

https://**www.paypal.com**.somerandomservice.com

Once again, with only a quick glance, you might think it would actually go to PayPal, since it starts with "https://www.paypal.com".

In that example, "www.paypal.com" is just a subdomain created by the owner of "somerandomservice.com" and has *nothing at all to do with the real PayPal.com*.

Here's a worse example:

https://www.paypal.com————————————————————.somerandomservice.com

Once again, it's designed to fool you into looking like paypal.com, but it's not — especially if your browser happens to only show you the first part of the URL in your status bar since it's so long.

Scammers use many different variations of this technique to trick you.
It's an evil world out there. Be wary ALL THE TIME. Take nothing for granted.

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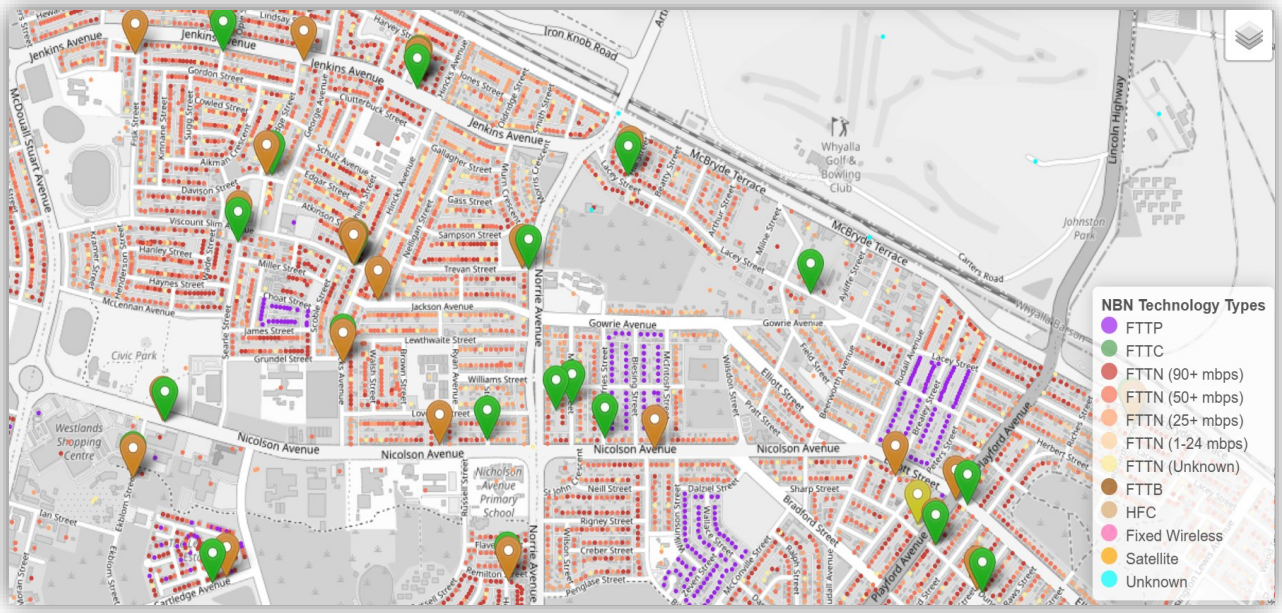
The NBN Picture

We have heard many a tale with regards to Speed and Fibre to the Premises (FTTP). It seems that there has been pockets of work that now appear to be coming up to long promises made so many years ago and only now some of them are coming to fruition. But don't count of it happening to your house anytime soon. It appears that the upgrade to FTTP and away from FTTN (Fibre to the Node). It appears the date of it happening has been predicted, according the NBN web site, closer to 2030. May I still be alive...



Radials— Ground verses Elevated

The Age-Old debate of what is better? Radials on the ground or radials in the air. And as usual there are advantages and disadvantages…

Let's summarise these and then you can make up your own mind.

Ground Mounting:

Advantages	Disadvantages
☑ The Radials are non-resident so one length (0.1 wl minimum at lowest frequency) works on all frequencies. ☑ Easy to mount. ☑ Easy to Access. ☑ Lower visual profile. ☑ Sixteen 0.1 wl (wavelength) radials of lowest intended frequency give 65% - 70% efficiency.	☒ Takes 120 radials to equal an elevated vertical with 2 resonant radials (90% efficiency). ☒ Surrounding objects can reduce signal strength.

Elevated Mounting:

Advantages	Disadvantages
☑ > 90%efficiency with two .25 wl radials. ☑ The Antenna is generally more "in the clear", so surrounding objects don't cause as much attenuation. ☑ A peaked metal roof will make a very good all-frequency radial system. ☑ Contrary to conventional wisdom the vertical doesn't have to be elevated very high, 150mm elevation results in much lower losses, even on 80m—1500mm is just fine for 80m.	☒ Mounting is generally more involved. ☒ Requires two 0.25 wl radials (minimum) for each band of operation (radials interact, so spacing will affect length). ☒ Visually higher profile. ☒ Must be mounted high enough so that people or animals will not accidentally make contact with the radials. ☒ Elevating lowers the impedance so radials may need up tp 30 degree downward slop to achieve a reasonable match.

The Annual Lighthouse & Lightship Weekend—Point Lowly

On the third weekend in August each year, radio amateur operators in some 50 countries worldwide gather at a nearby lighthouse to establish amateur radio stations at which they will attempt to make contact with various lighthouses and stations across the globe, from Scotland to Sweden to the southern tip of Australia.

Several years ago the International Association of Lighthouse Keepers decided to have an annual open day for lighthouses all around the world to encourage visitors to visit at their lighthouses and decided that no better day could be decided upon other than the Sunday of the amateur radio event. This move has been highly successful as the media have become involved in quite a few of the countries involved in the event.

The basic objective of the event is to promote public awareness of lighthouses and their need for preservation and restoration, and at the same time to promote amateur radio and to foster International goodwill.

Lighthouses are fast becoming an endangered species with the introduction of Global Positioning Systems and satellite navigation.

The Whyalla Amateur Radio Club, a not for profit community group, has participated in the event for a number of years, setting up a station at one of the lighthouse cottages or, when a cottage has not been available, from within the lighthouse generator room.

Our presence at the lighthouse has drawn quite a bit of interest from visitors to the area and some of our group who were not operating the station were kept busy talking to visitors about the lighthouse and of course promoting our hobby.

Antenna Myths and Mysteries

Antenna Myths That Refuse to Die

Every few years, the gear changes. Radios get smaller, waterfalls get prettier, and suddenly everyone's an "RF expert" again.

But the same old antenna myths just keep circulating—on air, online, and somehow even in club meetings.

Let's clear a few of them up.

Myth #1: "My antenna tunes perfectly, so it must be working great"

No. It means your tuner is working great.

A low SWR at the rig doesn't magically mean your antenna is efficient. You can tune a wet piece of string if you try hard enough. That doesn't mean it radiates well.

What actually matters:

- Radiation efficiency
- Losses in the system

Where the RF is *really* going
A dummy load also has a perfect match. Let that sink in.

Myth #2: "Higher is always better"

Mostly true… until it isn't.

Height helps—but only relative to wavelength. A dipole at 10 metres on 40m behaves very differently from one at 10 metres on 10m.

Sometimes:

•Low antennas = better NVIS coverage

High antennas = lower take-off angle for DX
If you don't know what you're trying to achieve, "higher" is just guesswork with extra effort.

Myth #3: "End-fed antennas don't need a counterpoise"

They absolutely do.

They just *hide* it.

If you don't provide a proper counterpoise, the current will happily use:

•Your coax shield

•Your rig chassis

Your shack wiring
That's when you get RF in the shack and wonder why everything is acting possessed.

Myth #4: "Resonant antennas don't need a tuner"

In theory, yes. In reality, not quite.

Even a well-cut antenna:

•Shifts with weather

•Changes with nearby objects

Rarely sits exactly where you want across a band
A tuner isn't a failure—it's a tool.

Myth #5: "All coax is basically the same"

Only if you enjoy wasting power.

Cheap or long coax runs can introduce serious loss, especially at higher frequencies. By the time your signal reaches the antenna, a chunk of it may already be gone.

And no, you won't fix that with wishful thinking or another ferrite clip.

Myth #6: "Verticals are noisy and dipoles are quiet"

Antennas don't "create" noise—your environment does.

What's really happening:

•Verticals pick up more low-angle noise

Dipoles can reject some local interference depending on orientation
But in a noisy suburb, everything is noisy. The antenna just changes how you hear it.

Myth #7: "If it worked once, it's a good design"

Propagation is a magician.

You can make a terrible antenna work during good band conditions and convince yourself it's brilliant. Then the bands change and suddenly it's "mysteriously" deaf.

One good contact proves nothing.

Consistency is what matters.

Final Thought

Antenna systems are where the real radio happens. Not in the menus, not in the display—out there in the wire, the air, and the physics whether you respect it or not.

The trouble is, physics doesn't care about opinions, forum posts, or how much you paid for the rig.

So the next time someone tells you their miracle antenna "works on every band with no compromise"…

Smile politely.

And maybe check what's actually doing the radiating.